

C L A I M S

1. An information storage medium having tracks characterized in that information is recorded, the tracks being formed as a groove and a land,

5 wherein the groove has a synchronous structure in which wobbles are formed on both walls of the groove and synchronized with each other, and the land has an asynchronous structure in which wobbles formed on both walls of the land are synchronized with each other.

10 2. The information storage medium according to claim 1, characterized in that the groove includes pairs of odd regions and even regions arranged at regular intervals, a wobble address is recorded on one of the odd region and the even region, and a wobble address is recorded on the even region of a groove which is formed adjacent to another groove having an odd region in which a wobble address is recorded, a land being interposed between said groove and said another groove.

15 3. The information storage medium according to claim 1, characterized in that one of two lands adjacent to both sides of the groove in a wobble address region has the synchronous structure.

20 4. An information recording and reproducing apparatus which records information on an information storage medium by forming a recording mark, the information storage medium having a data area to record

information and a management area to manage the information recorded on the data area and including a groove and a land formed spirally as information recording tracks, the apparatus characterized by comprising:

a first additionally writing means for recording information in the groove in the data area of the information storage medium, and deleting the information on the management area and additionally writing information to the groove without overwriting the groove when a rewrite instruction or a delete instruction is given;

a second additionally writing means for recording information in the land in the data area after information is additionally written to the whole groove by the first additionally writing means, and deleting the information on the management area and additionally writing information to the land when a rewrite instruction or a delete instruction is given; and

an overwriting means for overwriting the groove or the land recorded with the information to which the rewrite instruction or the delete instruction is given, after the information is additionally written to the whole land by the second additionally writing means.

25. An information recording/reproducing apparatus which records information on an information storage medium by forming a recording mark, the information

storage medium having a data area to record information and a management area to manage the information recorded on the data area and including a groove and a land formed spirally as information recording tracks,
5 the apparatus characterized by comprising:

a first additionally writing means for recording information in the groove in the data area of the information storage medium, and deleting the information on the management area and additionally writing information to the groove without overwriting the groove when a rewrite instruction or a delete instruction is given;

10 a first overwriting means for overwriting the groove recorded with the information to which the rewrite instruction or the delete instruction is given, after the information is additionally written to the whole groove by the first additionally writing means;

15 a second additionally writing means for recording information in the land in the data area after information is recorded on the whole groove by the first overwriting means, and deleting the information on the management area and additionally writing information to the land without overwriting the land when a rewrite instruction or a delete instruction is given; and
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25 a second overwriting means for overwriting the land recorded with the information to which the rewrite

instruction or the delete instruction is given, after the information is additionally written to the whole land by the second additionally writing means.

6. The information recording and reproducing apparatus according to one of claims 4 and 5, characterized by further comprising a means for determining that an address of the land is $j+i$, when a last address of the groove is j and an address obtained by tracing the land is i .

10 7. An information recording method in an information recording/reproducing apparatus which records information on an information storage medium by forming a recording mark, the information storage medium having a data area to record information and a management area to manage the information recorded on the data area and including a groove and a land formed spirally as information recording tracks, the method characterized by comprising:

20 recording information in the groove in the data area of the information storage medium, and deleting the information on the management area and additionally writing information to the groove without overwriting the groove when a rewrite instruction or a delete instruction is given;

25 recording information in the land in the data area after information is additionally written to the whole groove, and deleting the information on the management

area and additionally writing information to the land when a rewrite instruction or a delete instruction is given; and

5 overwriting the groove or the land recorded with the information to which the rewrite instruction or the delete instruction is given, after the information is additionally written to the whole land by the second additionally writing means.

8. An information recording medium from and on
10 which information can be reproduced or recorded using a focused light,

characterized in that data which can be recorded or is recorded on the information recording medium has a first data unit (ECC block),

15 the first data block being composed of second data units (segments),

the second data unit being composed of third data units (sector),

20 the third data unit being composed of fourth data units (sync data), and

wherein data errors can be detected or corrected within the first data unit.

9. An information recording medium from and on
which information can be reproduced and recorded using
25 a focused light,

characterized in that data that can be recorded on or reproduced from the information recording medium has

a first data unit (ECC block),

the first data unit being composed of second data units (segments),

the second data unit being composed of third data units (sector),

the third data unit being composed of fourth data units (sync data), and

wherein data errors can be detected or corrected within the first data unit,

at least any of zone identification information, segment address information, and track address information is prerecorded on the information recording medium,

the zone identification information or the segment address information is recorded by wobble modulation, and

the track address information is recorded using a particular format.

10. An information recording medium from and on which information can be reproduced and recorded using a focused light and on which at least any of zone identification information, segment address information, and track address information is prerecorded,

characterized in that error detection codes are added to the track address information by at least one of an adding process, a subtracting process, and an

exclusive OR operation process or a combination of at least two of these processes.

11. An information recording apparatus according to one of claims 8 to 10 having means for recording the
5 data on the information recording medium.

12. An information recording apparatus according to one of claims 8 to 10 having means for reproducing the data recorded on the information recording medium.